



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,834	09/26/2001	Dittmar Klett	10191/2011	2609

26646 7590 10/03/2003

KENYON & KENYON  
ONE BROADWAY  
NEW YORK, NY 10004

EXAMINER

ZIMMERMAN, GLENN

ART UNIT	PAPER NUMBER
----------	--------------

2879

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/964,834	KLETT ET AL.	
	Examiner	Art Unit	
	Glenn Zimmerman	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 July 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 16-18 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14 and 15 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Response to Amendment***

Amendment, filed on July 11, 2003, has been entered and acknowledged by the examiner.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Fisher U.S. Patent 3,300,672.

Regarding claim 1, Fisher discloses a spark plug (**Fig. 1;title**), comprising: a partially cylindrical insulator element (**insulator Figs. 1 and 2 ref. 13**); a housing (**tubular shell ref. 1**) enclosing the partially cylindrical insulator element; and a connection (**suitable spark plug cement ref. 24**) including at least one material bond by which the partially cylindrical insulator element and the housing are connected to one another (**Fig. 1**).

Regarding claim 2, Fisher discloses the spark plug according to claim 1, wherein: the partially cylindrical insulator element includes a base part (**ref. 15, 20, 17, 18 and 19**), and a diameter further from a combustion chamber of the partially cylindrical insulator element at least one of remains approximately equal and increases with an

increasing distance (**Fig 1; col. 2 lines 3-11**) from a free end of the base part in an entire region surrounded by the housing.

Regarding claim 3, Fisher discloses the spark plug according to claim 1, wherein the partially cylindrical insulator element includes a base part (**ref. 15, 20, 17, 18 and 19**), and an inner diameter of the housing in a region of the connection at least one of remains the same and increases with an increasing distance from a free end of the base part (**Fig. 1**).

Regarding claim 4, Fisher discloses a spark plug according to claim 1, wherein: the partially cylindrical insulator element includes a base part (**ref. 15, 20, 17, 18 and 19**), and a diameter (**elongated portion ref. 21**) of the partially cylindrical insulator element in a region on a side further from the base part adjoining a region surrounded by the housing is approximately equal to a largest diameter of the partially cylindrical insulator element in a region surrounded by the housing (**ref. 14 and 21**).

Regarding claim 5, Fisher discloses the spark plug according to claim 1, wherein the partially cylindrical insulator element includes a base part (**ref. 15, 20, 17, 18 and 19**), the housing includes at least one tubular section (**tubular shell ref. 1**) in which a diameter of the partially cylindrical insulator element is only slightly smaller than an inner diameter of the housing at the same distance to a free end of the base part (**Fig. 1**), and a connection along a circumference of the partially cylindrical insulator element closes a gap between the partially cylindrical insulator element and the housing (**suitable spark plug cement ref. 24**) .

Regarding claim 6, Fisher discloses the spark plug according to claim 5, further comprising at least one of: a first tubular (**bore ref. 11**) section arranged near a free end of the base part; and a second tubular section (**bore ref. 8 or 9**) arranged further away from the base part.

Regarding claim 7, Fisher discloses the spark plug according to claim 1, wherein the connection includes at least one of a soldered connection, a welded connection and an adhesive connection (**suitable spark plug cement ref. 24**).

Regarding claim 8, Fisher discloses the spark plug according to claim 1, wherein: the housing includes at least one tubular section (**tubular shell ref. 1**), and a diameter of the partially cylindrical insulator element (**larger diameter portion ref. 14**) is slightly larger than an inner diameter of the housing (**bore ref. 9 or 11**), when the partially cylindrical insulator element is not in place, at the same distance to a free end of a base part of the partially cylindrical insulator element.

Regarding claim 9, Fisher discloses the spark plug according to claim 8, wherein the connection further includes a friction-lock connection (**steel gasket ref. 23 or 25; col. 2 lines 20-25 pressure/friction keeps the steel gaskets in place**) aligned in a radial direction, and the friction-lock connection is produced by an installation of the partially cylindrical insulator element into the housing, the housing having a higher temperature than the partially cylindrical insulator element at a time of the installation.

Regarding claim 10, Fisher discloses the spark plug according to claim 1, further comprising an interlayer (**steel gasket ref. 23 or 25**) produced prior to the connection

Art Unit: 2879

and by which the partially cylindrical insulator element and the housing are connected with one another, wherein:

The interlayer is one of applied and attached to the partially cylindrical insulator element (**tubular insulator ref. 13**), and the interlayer is attached to the housing using at least one material bond (**cement ref. 24**).

Regarding claim 11, Fisher discloses the interlayer extends into regions outside the connection (**ref. 23 or 25**). The figure clearly shows that the reference 23 and 25 extending away from the cement into regions away from the connecting cement.

Regarding claim 15, Fisher discloses the spark plug according to claim 1, wherein the connection forms at least a significant portion of a cohesion of the housing and the partially cylindrical insulator element (**spark plug cement ref. 24**). The examiner notes that the cement covers three different surfaces of the shell and three different surfaces of the tubular insulator, which is a significant portion for cohesion.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fisher U.S. Patent 3,300,672 in view of Benedikt et al. U.S. Patent 4,870,319.

Regarding claim 14, Fisher teaches a surface of the insulator is treated **(on can see the roughness of the insulator as there are some rough sharp angles between ref. 20, 15, 16, 14 and 22 also there is a metallic topcoat ref. 25 and 23)** in a region of the connection such that a load capacity of the connection is increased , but fails to teach a ceramic insulator. Benedikt et al. in the analogous art teach a ceramic insulator **(col. 3 line 12)**. Additionally, Benedikt et al. teaches incorporation of such a ceramic insulator to improve insulation ability, provide a plug insulating body or insulator and allow for the use of only thin layers **(col. 2 lines 10-12; col. 3 lines 33-47)**.

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a ceramic insulator in the spark plug of Fisher since such a modification would improve insulation ability, provide a plug insulating body or insulator and allow for thin layers as taught by Benedikt et al.

#### ***Allowable Subject Matter***

Claims 12-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 12, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a spark plug including the combination of all the limitations as set forth in claim 12, and specifically a gap is

Art Unit: 2879

located between the housing and the interlayer in a region of a section lying closer to a base part of the partially cylindrical insulator element, and the interlayer is connected to the housing in a second section further away from the base part could not be found elsewhere in prior art.

Regarding claim 13, claim 13 is allowed for the reasons given in claim 12, because of its dependency status on claim 12.

### ***Response to Arguments***

Applicant's arguments filed July 11, 2003 have been fully considered but they are not persuasive. The applicants assert that there is no material bond between the shell and the insulator is disclosed or even suggested in Fisher. The examiner notes that the wording "material bond" must be given is broadest reasonable interpretation consistent with the claims. The examiner notes that there is no definition of the word material bond in the specification other than it connects. Examples are given of what could be a material bond, but no definition is supplied. The Fisher reference '672 discloses a cement reference 24. The dictionary definition of cement is something used that serves to bind or unite or a substance that hardens to act as an adhesive; glue. Also the material bond just has to connect which means join. The fisher reference '672 shows the partially cylindrical insulator element and the housing joined to one another through the cement.

Applicant's arguments with respect to claims 9 and 11 have been considered but are moot in view of the new ground(s) of rejection.



### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Linder et al. U.S. Patent 4,489,596 discloses a Spark Plug measuring Means. Linder discloses (**col. 4 lines 58-60 and col. 5 lines 54-59**) that cement is used to secure, seal and retain the insulator in the metal housing. Oshima et al. U.S. Patent 4,949,006 discloses a spark plug structure. Oshima et al. discloses that cement bonds (**col. 8 line 13-14**). Bray U.S. Patent 3,594,883 discloses a Process for Manufacturing Cold Sealed Spark Plugs.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (703) 308-8991. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is n/a.



Glenn Zimmerman



NIMESHKUMAR D. PATEL  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800